AMENDMENT TO THE DRAWINGS

Please find enclosed replacement sheet for Fig. 6 for the approval of the Examiner.

REMARKS/ARGUMENTS

Applicant responds herein to the Office Action dated March 25, 2006.

Preliminarily, Figure 6 has been re-labeled to include the legend "Prior Art". Further, minor amendments have been made to the specification, as requested by the Examiner and noted by the applicant.

Claims 1, 2, and 5 have been rejected for obviousness in view of US2005/0051100A1 (Chiang), 5,591,269 (Arami), and 6,645,304 (Yamaguchi). Claims 3 and 4 have been rejected for obviousness in view of Chiang, Arami, Yamaguchi, 6,693,789 (Inazumachi), and 6,475,924 (Yamamoto). Claims 1, 2, and 5 have been rejected for obviousness in view of Applicant's Admitted Prior Art (AAPA) and Arami. Claims 3 and 4 have been rejected for obviousness in view of AAPA, Arami, Inazumachi, and Yamamoto. Claims 1-3 and 5 have been rejected for obviousness in view of US Publication 2004/0074606A1 (Ootsuka-1) and Arami. Claim 4 has been rejected for obviousness in view of Ootsuka-1, Arami and Inazumachi. Reconsideration is requested in view of the Amendments to the claims herein and the following remarks.

Certain claims were also rejected for obviousness-type double patenting as follows: Claims 1 and 3 in view of U.S. Patent Application No. 10/613,574 (corresponding to US Publication 2004/0074606A1 (Ootsuka-1) and Arami; claims 1 and 5 in view of 6,872,908 (Ootsuka-2) and Arami; and Claims 1 and 5 in view of 6,768,079 (Kosakai) and Arami. These latter rejections have been overcome by the enclosed Terminal Disclaimer and, accordingly, should be withdrawn.

Substantively, an object of the present invention is to provide an electrode-built-in susceptor which has desirable thermal conductivity; durability against periodic thermal load; and a temperature-independent initial volume resistance value, to prevent the leakage of electricity, contamination of a sample, and thermal expansion. The inventions in accordance with the currently-amended Claims 1 and 2 are characterized as follows. The power supplying terminal is formed by a conductive aluminum-nitride-tantalum-nitride-composite-sintered-member, which has the following effects, e.g.: thermal stress, caused by difference of thermal expansion coefficients among elements which form the susceptor, are alleviated; the alleviated thermal stress improves connection between the power supplying terminal and the inner electrode; the

power supplying terminal is more resistive against oxidization; and the power supplying terminal is resistive against repetitive thermal loads where the power supplying terminal is in a high-temperature-and-oxidizing condition of 400°C. In addition, it is not necessary to cool the power supplying terminal in the present invention when heat conducted from the susceptor can be distributed by a plate sample uniformly.

The applicant has analyzed the citations with respect to the material forming the power supply terminals, the material forming the insulating layer, and the structural feature of the heaters with respect to the various rejections under 35 U.S.C. 103(a). It is respectfully contended that the limitation of the initially-filed Claim 3, i.e., "the power supplying terminal formed by a conductive aluminum-nitride-tantalum-nitride-composite-sintered-member", which is now included in Claims 1 and 2, is not disclosed or suggested in any of the citations. The initially-filed Claim 3 was dependent on the initially-filed independent Claim 1 corresponding to the first embodiment and FIG. 1. The initially-filed independent Claim 2 corresponds to the second embodiment and FIG. 5. Both FIGS. 1 and 5 support the structural feature that the power supplying terminals contact the inner electrodes. Therefore, the applicant submits that the currently-amended Claim 2, which limits the initially-filed Claim 2 by the limitation of the initially-filed Claim 3, does not constitute a new matter in the present invention. In addition, support for the currently-amended Claim 2 is found in lines 19 to 22, on page 17 of the initially-filed specification.

Turning to the references, an object of the invention disclosed by Chiang is to control the temperature of semiconductor devices, e.g., integrated circuits, accurately for improving product yield. A process chamber shown in FIGS. 1 and 6 (18) of Chiang has a movable lid (10) which regulates gas pressure; gas temperature controlling sections (64, 66, and 68); and coolant-temperature controlling sections (74, 76, and 78). Chiang does not disclose or indicate the material for forming a power supplying terminal and the material for forming an insulating layer. A heater (72) of Chiang is a single piece of an annular member.

An object of the invention disclosed by Arami is to improve thermal conductivity in a vacuum processing apparatus, i.e., to save electricity. The vacuum processing apparatus of Arami has a structure in which heat generated by a heater (26a) in a susceptor (21) is conducted

to a wafer (W) by a base (22) of the susceptor (21). Arami does not disclose or indicate the material for forming a power supplying terminal. With respect to the materials for forming an insulating layer, Arami discloses e.g., P-BN, SiO2, AlN, Al_2O_3, or Si_3N_4 (line 62 on Column 10 to line 13 of column 11 of Arami) FIG. 1 of Arami discloses a plurality of annular coolant paths (26) formed beneath a plurality of annular heaters.

An object of the susceptor disclosed by Yamaguchi is to prevent positional deviation of a wafer due to releasing static force which attracts the wafer onto a susceptor. A surface of the susceptor (5) of Yamaguchi is formed by a supporting layer (2) and a surface layer (3) so that a volume resistivity of the surface layer (3) formed by aluminum-nitride-based sintered body is lower than a volume resistivity of the supporting layer (2) (see column 2, lines 50 to 55). However, Yamaguchi does not disclose or indicate the material for forming a power supplying terminal, the material for forming a heater, or a structure for flowing coolant medium. With respect to a shape of the heater, A plurality of wire plasma electrodes (9) formed in the supporting layer (2) are wires. In contrast, the electrodes (42) for producing plasma in the present invention are plate electrodes.

Inazumachi has been cited in rejections in the examination of Ootsuka-1. An object of Inazumachi is to solve an undesirable phenomenon, e.g., plasma resistance and static absorbing force decreases if the thermal expansion ratio of the material forming a supporting plate and a carrying plate are different from the thermal expansion of the material for forming the inner electrodes and the power supplying terminals; thus, bonding sections for bonding the plates, electrodes, and terminals are deteriorated or destructed in a high-temperature conditions. In order to overcome such phenomenon, the mixture ratio for mixing power material for forming the inner electrodes and the power supplying terminals are the same in the susceptor of Inazumachi so that the thermal expansion co-efficient with respect to the supporting plate, the carrying plate, the inner electrodes, and the power supplying terminals are regulated to be close.

An object disclosed by Yamamoto is to improve adhesiveness between a conductive material, filled in a via-hole (2) formed on an aluminum-nitride substrate (1), and the corresponding substrate. Tantalum nitride is disclosed as an example of a desirable conductive material (see line 30, column 4 of Yamamoto). The Examiner stated that "Yamamoto teach

(FIG. 1) that tantalum nitride has good adhesion with aluminum nitride substrates (column 4, lines 15 to 30). Furthermore, during sintering process some of the tantalum will be inherently converted to tantalum nitride through reaction with nitride present in the mixture." However, the applicant submits that the conductive aluminum-nitride-tantalum-nitride-composite-sintered-member disclosed by the present invention cannot be obtained even if the aluminum-nitride substrate and the conductive material, e.g., tantalum nitride are merely adhered.

Ootsuka-1 is a U.S. Patent Application which discloses an invention similar to the present invention with respect to materials for forming inner electrodes and power supplying terminals. Ootsuka-1 is currently pending examination. In the second Office Action, Ootsuka-1 was rejected under non-statutory double patenting against the present application. The applicant of Ootsuka-1 has submitted a terminal disclaimer to the present application in view of a common feature that both inventions use power supplying terminals made of ceramics, not metal.

As stated previously, and as shown above, the limitation, "the power supplying terminal formed by a conductive aluminum-nitride-tantalum-nitride-composite-sintered-member", which is incorporated in Claims 1 and 2 (as amended) is not disclosed or suggested in any of the citations.

Accordingly, the Examiner is respectfully requested to reconsider the application, allow the claims as amended and pass this case to issue.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450, on June 26, 2006

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Respectfully submitted,

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